REMARKS

Two new claims, which find basis in the original claims and on page 5, lines 4-7, have been presented for consideration by the Examiner.

Claims 1 and 3-11 have been rejected under 35 U.S.C.103 over Ohman in view of Lovin. This rejection is respectfully traversed.

The method of the present invention, in its broadest aspect, concerns producing a printed packaging material by applying an actinic radiation activatable liquid ink to the material, exposing the ink to a first actinic radiation, applying an energy-curable coating over the ink and curing the coating with a second actinic radiation. As pointed out at the bottom of page 3 of the application, the term "actinic-radiation activatable ink" means that the ink is substantially free of curable functionality, i.e., functional groups that can be cross-linked or polymerized.

Ohman teaches the production of a packaging laminate in which a printing ink is applied to the surface of the laminate, overcoated with a radiation curable lacquer and then cured with UV light or electron radiation. Two statements in the Office Action (on pages 2-3 and 7) recognize that the second bullet point on page 2 (exposing the ink to UV light prior to the application of the radiation-curable lacquer) is wrong. Ohman states in paragraph [0031] that a radiation curable printing ink is an ink which can be cured by radiation with UV light but it does not state or suggest that such ink is cured or exposed to UV light prior to being overcoated with a transparent layer. The only sequence involving application of UV light disclosed in this reference is where the radiation curable ink and

radiation curable lacquer are simultaneously cured using a common UV radiation source. This is shown in paragraph [0034].

Lovin teaches a process in which a radiation curable ink is applied to a substrate, partially cured by UV radiation, overcoated with another layer of radiation curable ink and then radiated with EB to cure the first and second ink coatings. Both of Lovin radiation curable inks contain curable functionality. As the Examiner previously noted, Lovin fails to teach or suggest the application of an energy curable coating to the first ink after UV irradiation.

As the Examiner has pointed out, the sole reason for partial curing in Lovin is to avoid pick-off and smearing of the first ink (containing curable functionality) when the second ink (also containing curable functionality) is applied. However, there is no indication anywhere in Ohman that pick-off and smearing is a problem in that system. Accordingly, there is no reason for a skilled person to combine these two references, and indeed, a particular feature of Ohman is that only a single UV curing is used, making the process efficient and extremely rapid. See [0034]. An intermediate cure is contrary to Ohman. It is respectfully submitted that the lack of a reason to partially cure the first ink coupled with the loss of the efficiency and speed of the Ohman process makes the combination untenable.

Claims 1, 4, 5, 7, 8 and 11 were rejected under 35 U.S.C.103 over Lovin in view of Edlein.

Lovin has been discussed above. It fails to teach or suggest the application of an energy curable coating to the ink after the partial UV irradiation, and uses a pair of radiation curable inks which contain curable functionality.

Edlein teaches a process in which one or more solvent based inks are applied to a thermoplastic packaging material, affixed to the material by the application of air and/or heat, overcoated with a pigment free coating containing a polymerizable material and then exposed into ionizing radiation. The rejection is based on the assertion that it would be obvious to incorporate the use of a radiation curing overcoat in the method of Lovin to protect the image made by the first ink, but the result of doing so would not be the claimed method. The resulting process would still involve the initial application of a radiation curable ink which contains curable functionality. Further, there is no reason to employ the overcoat in this manner since Lovin states that the procedure disclosed therein already protects the image.

Beyond the foregoing, it should also be noted that Edlein specifically distinguishes his method from that of Lovin in column 9, pointing out that the partial curing UV step is unnecessary. This is another reason that the combination of Lovin and Edlein is inappropriate and does not teach or suggest the invention claimed in this case.

Claims 1, 2, 5, 6, 9 and 11 were rejected under 35 U.S.C. 103 over Mossbrook in view of Lovin. This rejection is also respectfully traversed.

Mossbrook discloses a method in which a printed image is applied to a

thermoplastic film having a thickness of less than 15 mils using a radiation curable or solvent based ink followed by applying an overprint varnish and curing the overprint varnish with radiation energy. Mossbrook fails to disclose exposure the ink to UV after being applied to the film and before the overcoating. There is no teaching or suggestion in Mossbrook that the ink image is subject to pick-off and smearing, or that there is any problems with either shrinkage or the food packaging environment. This is significant because Mossbrook was clearly aware of such image damage problems after curing the overprint (see [0045]), and is making a product for use in food packaging.

Lovin is relied on to show partially curing to avoid pick-off and smearing, or problems with shrinkage or the food packaging environment. But there is no reason to incorporate Lovin's partial curing into Mossbrook. There is no reason to address problems which did not exist in the first instance. Moreover, incorporating that partial cure procedure into the Mossbrook method would not result in the claimed invention since it involves applying an ink containing curable functionality onto the substrate whereas the invention uses an actinic radiation activatable ink which is substantially free of such functionality. That is clearly unobvious since there is no apparent reason to subject an ink free of curable functionality into an energy curing system such as UV or EB.

Claims 1, 11, 15, 16 and 17 were rejected under 35 U.S.C.103 over Mossbrook in view of Lovin and Chatterjee. This rejection is respectfully traversed.

The combination of Mossbrook and Lovin has been discussed above. Chatterjee is relied upon solely to show that it is possible "to perform a solvent rub test" (Office Action page 7). The fact that such a possibility exists does not make it obvious that the packaging material has a specific solvent rub test result. Moreover, this additional reference does not cure any of the deficiencies in the combination of Mossbrook and Lovin and, therefore, these claims recite patentable subject matter. Further, the applicability of this rejection to claims 1 and 11, which do not recite a rub test result, is not apparent.

In view of the above amendment, applicant believes the pending application is in condition for allowance.

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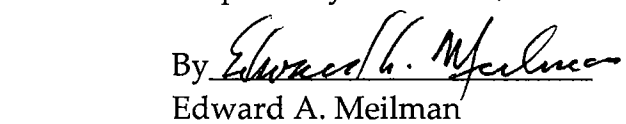
Respectfully submitted,

By 

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